FACT SHEET FOR STATE WASTE DISCHARGE PERMIT NO. ST 5043
WASHINGTON CORRECTIONS CENTER

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FACT SHEET FOR STATE WASTE DISCHARGE PERMIT NO. ST 5043
WASHINGTON CORRECTIONS CENTER

INTRODUCTION

This fact sheet is a companion document to the draft State Waste Discharge Permit No. ST 5043. The Department of Ecology (the Department) is proposing to issue this permit, which will allow discharge of wastewater to waters of the state of Washington. This fact sheet explains the nature of the proposed discharge, the Department's decisions on limiting the pollutants in the wastewater, and the regulatory and technical bases for those decisions.

Washington State law (RCW 90.48.080 and 90.48.162) requires that a permit be issued before discharge of wastewater to waters of the state is allowed. Regulations adopted by the state include procedures for issuing permits (Chapter 173-216 WAC), technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), and water quality criteria for ground waters (Chapter 173-200 WAC). They also establish the basis for effluent limitations and other requirements which are to be included in the permit.

This fact sheet and draft permit are available for review by interested persons as described in Appendix A--Public Involvement Information.

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in these reviews have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Changes to the permit will be addressed in Appendix D--Response to Comments.

GENERAL INFORMATION

Applicant:	Washington Department of Corrections
Facility Name and Address:	Washington Corrections Center P.O. Box 900 Shelton, WA 98584
Type of Treatment System:	Oxidation Ditch/Filtration
Discharge Location:	Latitude: 47° 11’ 25” N. Longitude: 123° 14’ 40” W.
Legal Description of Application Area:	Section 4, T20N, R4W S-1/2 of the SE 1/4 lying west of the R/W of Hwy 102 except north 300’ Section 9, T20N, R4W N-1/2 of the NE 1/4 lying west of the R/W of Hwy 102
Contact at Facility:	Charles Hicks (or Tom Fischer) Telephone #: (360) 426-4433
Responsible Official:	Robert Bergquist Environmental Manager P.O. Box 41112, Olympia, WA 98504-1112 Telephone #: (360) 753-3975 FAX #: (360) 586-8723

BACKGROUND INFORMATION

DESCRIPTION OF THE COLLECTION AND TREATMENT SYSTEM

HISTORY

Washington Corrections Center (WCC) is a medium security, adult correctional institution supervised and operated by the state of Washington, Department of Corrections (DOC). In addition, WCC contains processing facilities for newly interned individuals. WCC is located approximately five miles north and west of the City of Shelton in Mason County. Total acreage of state-owned land is approximately 455 acres with 125 acres developed for correctional facilities.

The institution consists of an administration building, dormitories for inmate housing, steam plant, laundry and kitchen facilities, maintenance shop, greenhouse, guard towers, wastewater treatment plant, and water supply system. All buildings and structures are connected to the wastewater treatment collection system, except for some of the guard towers which have individual septic and drainfield systems. The institution has no industries which discharge significant quantities of industrial wastes or high organic loads into the collection system.

TREATMENT PROCESS

The treatment facility was recently upgraded to address treatment and disposal problems and to provide additional treatment capacity. The upgraded facility produces the equivalent of Class A reclaimed water; however, it does not currently meet all of the reliability requirements necessary for this class of water reuse.

Influent flow to the plant is initially passed through a sewage grinder, mechanically cleaned fine screen and magnetic flow meter. Flow then enters a train of three selector basins and one anoxic basin designed to control bulking of sludge and provide initial denitrification. Discharge from these basins goes to a 332,000 gallon oxidation ditch equipped with two surface brush rotors and eight aspirating mixers for aeration and mixing. The ditch provides nitrification as well as organic stabilization; caustic soda is added to the ditch to ensure adequate alkalinity for nitrification. To provide denitrification, wastewater from the oxidation ditch is recycled to the third selector basin followed by the anoxic basin.

The wastewater then is split to two secondary clarifiers; one is peripheral feed, 36’-3” in diameter by 10’-6” side water depth (SWD). The peripheral feed clarifier was converted from a package plant that was used prior to construction of the oxidation ditch in the early 1970s. The other clarifier is 35’-0” diameter by 12’-0” SWD center-feed, constructed in 1993.

From the clarifiers, the effluent drains to a pump station and is pumped through a coarse basket screen to a rotary disk filter. Following filtration, the effluent is equalized in two storage tanks. Based on the established application rates, the effluent is pumped through an in-line ultraviolet (UV) light disinfection unit. The UV unit, as well as a second backup unit, is equipped with medium pressure, high intensity lamps.

DISTRIBUTION SYSTEM (SPRAY AREA, DRAINFIELD)

Following disinfection the effluent is pumped approximately 6,000 feet through a 10” diameter high density polyethylene (HDPE) force main to a 27-acre forested spray area. The spray area is divided into five zones which receive effluent on a daily rotating basis. Piping in each zone consists of 8” diameter manifolds with 4” diameter laterals made of HDPE placed on the surface of the land.

During periods when application to the spray area is not appropriate, the effluent will be pumped to three drainfields which were in use prior to construction of the spray disposal system. Use of the drainfields is estimated to occur 20 days per year.

In addition to the improvements to the WWTP, a grease interceptor and a kitchen wastewater screening unit have been installed at the kitchen areas to reduce the amount of grease, BOD_5, and TSS loadings to the treatment plant.

RESIDUAL SOLIDS

The treatment facility removes solids at the headworks (grit and screenings), and in the secondary clarifiers, in addition to incidental solids (rags, scum, and other debris) removed as part of the routine maintenance of the equipment. Grit, rags, scum, and screenings are drained and disposed of as solid waste at the local landfill. Solids removed from the secondary clarifiers are treated by aerobic digestion and land applied under a permit from the Mason County Department of Health.

GROUND WATER

GEOLOGY

The spray area is underlain by a thick sequence of unconsolidated glacial and interglacial deposits which comprise several stratigraphic units, including Vashon Recessional Outwash, Vashon Till, Vashon Advance Outwash, Kitsap Formation, and Salmon Springs Formation. These units contain two regional aquifers.

The Vashon Recessional Outwash contains the shallow aquifer. It is comprised of fine to medium gravel and poorly graded sand. This unit is typically 20 to 150 feet thick. Vashon Till normally underlies the recessional outwash, but is absent at this site. The till layer usually acts as a confining layer, separating the recessional outwash from the advanced outwash aquifers. As a result, the Vashon Advance Outwash is part of the shallow unconfined aquifer system at this site since the till layer is absent. This unit is comprised of stratified sands and gravels and is approximately 200 feet thick. This aquifer is the primary drinking water source for southeastern Mason County. The depth to ground water ranges from 2 to 39 feet below land surface; the shallow depth is found in deep kettles on the site.

The Kitsap Formation underlies the outwash aquifer and is comprised of silt and fine sand with some gravel and peat. This unit normally acts as an aquitard, however, there are some productive Skokomish gravel lenses present which serve several municipal and industrial wells in the area. This unit may be up to 50 feet thick. The Salmon Springs Unit is the sea level aquifer comprised of sand and gravel; it is between 50 to 100 feet thick. Volcanic Basalt is the bedrock unit which underlies the Salmon Springs Unit. This unit is fairly limited in water production except for some fractured areas which are known to produce significant quantities of water.

HYDROGEOLOGY

The uppermost aquifer in the outwash units has a saturated thickness that ranges from 25 to 45 feet thick, with the water table fluctuating between 7 and 16 feet below land surface. The hydraulic gradient is 0.003 to 0.004 flowing to the southeast, and the horizontal hydraulic conductivity of the outwash aquifer is approximately 3×10^{-1} cm/sec. Based on an estimated porosity of 20 percent, the ground water velocity ranges between 12 and 17 feet per day.

IMPACTS TO GROUND WATER QUALITY

The WCC treatment facility will be applying an average of 286,000 gallons per day at full capacity to 27 acres of forested land. It is estimated that the treatment facility will treat the effluent to no more than 10 mg N/l of total nitrogen. This effluent will be further treated by nitrogen uptake of the plants and through denitrification. Background nitrogen concentrations in ground water are not clearly defined, but, based on a limited number of samples, is estimated to be approximately 0.05 mg N/l. It is estimated that background concentrations could potentially increase to between 2.0 and 3.0 mg N/l in ground water. These impacts will be assessed through monitoring of four monitor wells located upgradient and downgradient of the spray area.

PERMIT STATUS

The previous permit for this facility was issued on January 25, 1977.

An application for permit renewal was submitted to the Department on January 8, 1997, and was accepted by the Department on March 31, 1997.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility last received an inspection on December 5, 1996.

During the history of the previous permit, the Permittee reported chronic violations of flow and TSS on the monthly Discharge Monitoring Reports (DMRs), other reports submitted to the Department, and during inspections conducted by the Department.

WASHINGTON DOC COMPLIANCE HISTORY

The facility was issued State Waste Discharge Permit No. 5043 on January 25, 1977. The Department administratively extended the permit in 1982, but it has not been reissued or extended since. The original permit contains limits for flow and total suspended solids. A new permit application based on the upgraded facility was received on January 8, 1997.

When the last major upgrade to the facility was completed in 1971, the design was for a staff and inmate equivalent population of 960, or a maximum month flow of 0.085 million gallons per day (MGD). Prior to the recent upgrade, the population had reached an equivalent population of approximately 1,800, and maximum month flows were as high as 0.265 MGD. WCC has experienced chronic effluent violations for flow and total suspended solids since January 1992. Prior to the recent upgrade, disposal was to three subsurface drainfields. Notice of Violation No. DE 94WQ-S387 was issued December 23, 1994, to address the chronic violations.

Upgrade of the treatment facility was accomplished in two phases. Phase I involved rehabilitation of the failing drainfields and construction of a new clarifier. Since completion of the Phase 1 improvements in 1993, there have been only two TSS violations.

Phase II involved additional improvements to the treatment facility to provide nitrogen removal, rehabilitation of the secondary clarifier, installation of filtration and UV disinfection units, and construction of an effluent spray area. In addition, a grease interceptor and a kitchen wastewater screening unit was installed to reduce the amount of grease, BOD_5, and TSS loadings to the plant.

The last compliance inspection of the WCC facility was on December 5, 1996. An inspection of the drainfields indicated ponding from rain, and treated effluent surfacing on field #2 in the southwest corner. This has been a chronic problem in this area due to the finer grained soils and the release of solids to the drainfield. Viewing ports installed throughout the drainfield indicated the water table was high, within 1

to 2 feet from the surface of the ground. With the completion of the spray area, the drainfields will be used only as an alternative discharge point when application to the spray area is not appropriate. Use of the drainfields is expected to occur approximately 20 days per year. It is anticipated that, due to the small amount of time the drainfields will be used and the high quality of the effluent, they should be adequate to serve as an alternative discharge point. If continued failures should occur, the need for storage or other discharge options will have to be evaluated.

On January 19, 1996, DOC and Ecology signed Agreed Order No. DE 95WQ-S397 and Addenda. The order required DOC to prepare a wastewater pollution prevention (P2) plan for the facility and to implement a compliance schedule for the wastewater treatment plant. In accordance with the order, a P2 plan was submitted in May 1996 which evaluated waste reduction measures to reduce loading. DOC committed to several of the recommended waste reduction measures as a result. The proposed five-year implementation plan contains the following schedule:

	Action	Estimated Implementation Date
1.	Install a screening unit	December 31, 1997
2.	Install grease interceptor	December 31, 1997
3.	Install Chemical Feed System in laundry	December 31, 1997
4.	Reduce number of cycles per load	December 31, 1997
5.	Install waterless no-flush urinals	December 31, 1999
6.	Install ASKO clothes washers	December 31, 1999
7.	Implement Good Operating Practices	On-going

WASTEWATER CHARACTERIZATION

The concentration of pollutants expected in the discharge was reported in the permit application. The proposed wastewater discharge to the spray area is expected to contain the following parameters:

Table 1: Wastewater Characterization

Parameter	Concentration
BOD_5	<10 mg/l
TSS	<10 mg/l
Total N	<10 mg/l
Total Coliform	<2.2/100 ml

PROPOSED PERMIT LIMITATIONS

State regulations require that limitations set forth in a waste discharge permit must be either technology- or water quality-based. Wastewater must be treated using all known, available, and reasonable treatment (AKART) and not pollute the waters of the state. The minimum requirements to demonstrate compliance with the AKART standard are derived from the *Water Reclamation and Reuse Standards*, 1997, the *Design Criteria for Municipal Wastewater Land Treatment*, and Chapter 173-221 WAC. Since WCC applies treated effluent to a non-food crop and WCC either owns or controls the application site, the effluent, according to Section I, Article 1, Section 2 of the reuse standards, is not required to meet the reuse standards testing or treatment requirements.

The permit also includes limitations on the quantity and quality of the wastewater applied to the spray area that have been determined to protect the quality of the ground water. Water quality-based limitations are based upon compliance with the Ground Water Quality Standards (Chapter 173-200 WAC).

The more stringent of the water quality-based or technology-based limits are applied to each of the parameters of concern. Each of these types of limits is described in more detail below.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

All waste discharge permits issued by the Department must specify conditions requiring available and reasonable methods of prevention, control, and treatment of discharges to waters of the state (WAC 173-216-110). The following permit limitations are necessary to satisfy the requirement for AKART:

Parameter	Concentration[a]
BOD_5	30 mg/l
TSS	30 mg/l
pH	6 to 9
Fecal Coliform	200/100 ml

[a]Concentration represents a monthly average requirement.

GROUND WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's ground waters including the protection of human health, WAC 173-200-100 states that waste discharge permits shall be conditioned in such a manner as to authorize only activities that will not cause violations of the Ground Water Quality Standards. Drinking water is the beneficial use generally requiring the highest quality of ground water. Providing protection to the level of drinking water standards will protect a great variety of existing and future beneficial uses.

Applicable ground water criteria as defined in Chapter 173-200 WAC and in RCW 90.48.520 for this discharge include the following:

Table 2: Ground Water Quality Criteria

Parameter	Concentration
Total Coliform Bacteria	1 Colony/ 100 ml
Total Dissolved Solids	500 mg/l
Total Nitrogen	10 mg/l
Total Trihalomethanes	0.1 mg/l
Copper	1 mg/l
Zinc	5 mg/l
Fecal Coliform	1 #/100ml

Parameter	Concentration
Sulfate	250 mg/l
Chloride	250 mg/l
Sulfate	250 mg/l
Nitrate	10 mg/l
pH	6.5 to 8.5 standard units
Total Iron	0.3 mg/l

The Department has reviewed existing records and is unable to determine if background ground water quality is either higher or lower than the criteria given in Chapter 173-200 WAC; therefore, the Department will use the criteria in the regulation as interim limits. The discharges authorized by this proposed permit are not expected to interfere with beneficial uses. Once background water quality has been defined over a two year period, enforcement limits in ground water may be evaluated.

Pollutant concentrations in the proposed discharge exceed ground water quality criteria with technology-based controls which the Department has determined to be AKART. Therefore, a limit based on ground water criteria is established and applied at the end of treatment.

COMPARISON OF LIMITATIONS WITH THE EXISTING PERMIT

Table 3: Comparison of Previous and New Limits

Parameter	Existing Limits		Proposed Limits	
Flow	Maximum Month .085 MGD		Maximum Month MGD	0.40
TSS	Monthly Average mg/l	20	Monthly Average mg/l	10
BOD_5	None		Monthly Average mg/l	15
pH	None		Within range 6 – 9	
Fecal Coliform Bacteria	None		Monthly Average 50/100 ml	
Total Nitrogen	None		Monthly Average 10 mg/l	

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are specified to verify that the treatment process is functioning correctly, that ground water criteria are not violated, and that effluent limitations are being achieved (WAC 173-216-110).

INFLUENT AND EFFLUENT MONITORING

The monitoring and testing schedule is detailed in the permit under Condition S2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

GROUND WATER MONITORING

The monitoring of ground water at the site is required in accordance with the Ground Water Quality Standards, Chapter 173-200 WAC. The Department has determined that this discharge has a potential to pollute the ground water. Therefore the Permittee is required to evaluate the impacts on ground water quality. Monitoring of the ground water at the site boundaries and within the site is an integral component of such an evaluation.

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3. are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 273-216-110).

FACILITY LOADING

The design criteria for this treatment facility are taken from March 1996, engineering report prepared by Gray & Osborne and are as follows:

Maximum month flow	0.4 MGD
Maximum month BOD_5 loading	1130 lbs/day
Maximum month TSS loading	830 lbs/day

The permit requires the Permittee to maintain adequate capacity to treat the flows and waste loading to the treatment plant (WAC 173-216-110[4]). The Permittee is required to submit an engineering report when the plant reaches 85 percent of its flow or loading capacity. For significant new discharges, the permit requires a new application and an engineering report (WAC 173-216-110[5]). The permit requires the Permittee to submit annual reports comparing the actual flow and waste loadings to the design criteria for the plant.

OPERATIONS AND MAINTENANCE

The proposed permit contains condition S.5. as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment.

RESIDUAL SOLIDS HANDLING

To prevent water pollution the Permittee is required in permit condition S7. to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and state Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503. The disposal of other solid waste is under the jurisdiction of the local health district.

PRETREATMENT

WAC 173-216-110 requires that the list of prohibitions in WAC 173-216-060 be included in the permit.

Federal pretreatment requirements in 40 CFR 403 and Sections 307(b) and 308 of the Clean Water Act apply to this facility. Therefore notification to the Department is required when pretreatment prohibitions are violated and when new sources of commercial or industrial wastewater discharge are added to its system.

An industrial user survey may be required to determine the extent of compliance of all industrial users of the sanitary sewer and wastewater treatment facility with federal pretreatment regulations (40 CFR Part 403 and Sections 307(b) and 308 of the Clean Water Act), with state regulations (Chapter 90.48 RCW and Chapter 173-216 WAC), and with local ordinances.

SPILL PLAN

The Department has determined that the Permittee stores a quantity of chemicals that have the potential to cause water pollution if accidentally released. The Department has the authority to require the Permittee to develop best management plans to prevent this accidental release under section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080.

The Permittee has developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The proposed permit requires the Permittee to update this plan and submit it to the Department.

GENERAL CONDITIONS

General Conditions are based directly on state laws and regulations and have been standardized for all industrial waste discharge to ground water permits issued by the Department.

Condition G1 requires responsible officials or their designated representatives to sign submittals to the Department. Condition G2 requires the Permittee to allow the Department to access the treatment system, production facility, and records related to the permit. Condition G3 specifies conditions for modifying, suspending or terminating the permit. Condition G4 requires the Permittee to apply to the Department prior to increasing or varying the discharge from the levels stated in the permit application. Condition G5 requires the Permittee to submit written notice of significant increases in the amount or nature of discharges (typically new industrial discharges) into the sewer system tributary to the permitted facility. Condition G6 requires the Permittee to construct, modify, and operate the permitted facility in accordance with approved engineering documents. Condition G7 prohibits the Permittee from using the permit as a basis for violating any laws, statutes or regulations. Condition G8 requires application for permit renewal 60 days prior to the expiration of the permit. Condition G9 requires the payment of permit fees. Condition G10 describes the penalties for violating permit conditions.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to control toxics, and to protect human health and the beneficial uses of waters of the State of Washington. The Department proposes that the permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

Faulkner, S.P., Patrick Jr., W.H., Gambrell, R.P., May-June, 1989. Field Techniques for Measuring Wetland Soil Parameters, Soil Science Society of America Journal, Vol. 53, No.3.

Washington State Department of Ecology, 1993. Guidelines for Preparation of Engineering Reports for Industrial Wastewater Land Application Systems, Ecology Publication # 93-36. 20 pp.

Washington State Department of Ecology and Department of Health, 1993. Water Reclamation and Reuse Interim Standards, Ecology Publication # 93-21. 23 pp.

Washington State Department of Ecology, 1996. Implementation Guidance for the Ground Water Quality Standards.

Washington State University, November, 1981. Laboratory Procedures - Soil Testing Laboratory. 38 pp.

APPENDICES

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page one of this fact sheet. The permit contains conditions and effluent limitations which are described in the rest of this fact sheet.

Public notice of application was published on September 5, 1996, in the *Shelton Mason County Journal* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department published a Public Notice of Draft (PNOD) in the *Shelton Mason County Journal* to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the thirty (30) day comment period to the address above. The request for a hearing shall indicate the interest of the party and reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-216-100). Public notice regarding any hearing will be circulated at least thirty (30) days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing.

The Department will consider all comments received within thirty (30) days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407-6279, or by writing to the address listed above.

APPENDIX B--GLOSSARY

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation--The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD_5 is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of the collection or treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Distribution Uniformity--The uniformity of infiltration (or application in the case of sprinkle or trickle irrigation) throughout the field expressed as a percent relating to the average depth infiltrated in the lowest one-quarter of the area to the average depth of water infiltrated.

Engineering Report--A document, signed by a professional licensed engineer, which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Soil Scientist--An individual who is registered as a Certified or Registered Professional Soil Scientist or as a Certified Professional Soil Specialist by the American Registry of Certified Professionals in Agronomy, Crops, and Soils or by the National Society of Consulting Scientists or who has the credentials for membership. Minimum requirements for eligibility are: possession of a baccalaureate, masters, or doctorate degree from a U.S. or Canadian institution with a minimum of 30 semester hours or 45 quarter hours professional core courses in agronomy, crops or soils, and have 5, 3, or 1 years, respectively, of professional experience working in the area of agronomy, crops, or soils.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Coliform Bacteria--A microbiological test which detects and enumerates the total coliform group of bacteria in water samples.

Total Dissolved Solids--That portion of total solids in water or wastewater that passes through a specific filter.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent pollution of the receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

APPENDIX D--RESPONSE TO COMMENTS

1. Comment

Page 4, SUMMARY OF PERMIT REPORT SUBMITTALS: The first submittal date for the Annual Wasteload assessment (Section S4.C) is March 1, 1998, which is before the effective date of the new permit. It is requested that this submittal date be changed to allow adequate time to complete the required report.

Response

Comment noted. The date has been changed to June 15, 1998. The first report should include data from 1997.

2. Comment

Page 5, DISCHARGE LIMITATIONS: The designated land for spray irrigation is less than one mile east of the WCC. The text states approximately one mile.

Response

Comment noted. The text has been changed.

3. Comment

Page 6, S2. MONITORING REQUIREMENTS, A. Wastewater Monitoring: Please confirm that the required sampling frequency for effluent Total Nitrogen is "Quarterly/1 year" as shown in the Effluent Testing Schedule. This sampling frequency does not appear to be consistent with the Effluent Limitations in Section S1 indicating average monthly and maximum daily Total Nitrogen Limits.

Response

The sampling frequency for effluent Total Nitrogen is quarterly for one year, then annually in October. Samples taken are subject to the average limit of 10 mg/L and the maximum weekly limit of 20 mg/L.

4. Comment

Page 11, S4. FACILITY LOADING, A. Design Criteria: It is requested that "Design Population" be shown as "Design Inmate Population," and the population of 2,650 be changed to 2,288 to clarify the actual population type and number represented in the design criteria for the treatment facility, as included in March 1996 Engineering Report. The total design loading to the treatment facility originally included an allowance for the State Patrol Academy located near the corrections center. As shown in Table 3-3 in the Engineering Report, the total design average annual flow to the treatment facility is 286,000 gallons/day. For the design "per inmate" hydraulic loading of 125 gallons/inmate, this design flow is equivalent to 2,288 inmates. Indicating the design population on an inmate (only) basis is consistent with other state corrections center waste discharge permits and incorporates all resident and staff loading into a common basis for these institutions.

Response

The permit application, in Section B.3.g, specifies a design population of 2650. Ecology realizes that the value 2650 includes more people than just the inmates. Besides the inmates, staff and the State Patrol Academy contribute flow and loading to the wastewater treatment plant. The influent to the wastewater treatment plant does not distinguish the source, only the total flow and loading. Likewise, the permit will list the total design population of 2650.

5. Comment

Page 11, S4. FACILITY LOADING, A. Design Criteria: The influent loading for maximum month should be changed from 1,000 lbs/day to 1,130 lbs/day for Five-Day Biochemical Oxygen Demand (BOD_5) and from 630 lbs/day to 830 lbs/day for Total Suspended Solids (TSS) to agree with the Engineering Report (Table 3-3). Please note that the as-built set of project construction plans dated August 1996 will have sheet G-3, Process Schematic & Design Criteria, revised to be consistent with these corrections.

Response

Comment noted. Permit changed.

6. Comment

Page 12, S4. FACILITY LOADING, C. Annual Wasteload Assessment: Please refer to comment #1 above.

Response

Comment noted and date changed.

7. Comment

Page 12, S5. OPERATION AND MAINTENANCE, A. Certified Operator: The current wastewater plant operator is certified for a Class II plant. Please provide the analysis that indicates a Class III certification is required.

Response

According to WAC 173-230-140 the new wastewater treatment plant is rated as a Class III treatment plant. State regulation, WAC 173-230-040, requires an operator with the same classification as the plant. We have enclosed a copy of the rating.

WAC 173-230-140 provides a classification criteria for wastewater treatment plants. The WAC is enclosed.

8. Comment

Page 15, S5. OPERATION AND MAINTENANCE, I. Best Management Practices/Pollution Prevention Program, 2: The WCC allows only staff to handle mixing and cleaning solutions and detergents because past training of inmates was not successful. Likewise, water conservation training for the inmates has not been successful, although still encouraged whenever possible. The staff do receive training in both materials handling and water conservation. It is very important that the requirement of instituting an inmate training program be omitted from the permit as it is not feasible within a correctional facility.

Response

Comment acknowledged and references to inmate training requirements have been deleted.

9. Comment

Fact Sheet, Page 5, WASHINGTON DOC COMPLIANCE HISTORY: The text states that DOC committed to several of the recommended waste reduction measures as a result of completing the Pollution Prevention Plans under the Agreed Order No. DE 95WQ-S397 and Addenda. While this is true, due to funding and feasibility constraints, DOC has not committed to the entire proposed five-year implementation plan that is outlined in the text. Many of the items recommended for implementation in the Pollution Prevention Plan for WCC that are listed on page 5 of this fact sheet have already been implemented. The DOC has demonstrated a good faith effort towards achieving waste reduction at WCC and has exceeded the requirements of the Agreed Order. A continued effort towards maximizing waste reduction measures is occurring.

Response

Comment acknowledged.

10. Comment

Fact Sheet, Page 8, OTHER PERMIT CONDITIONS, *FACILITY LOADING*: The maximum month TSS loading should be changed from 890 lbs/day to 830 lbs/day as shown in Table 3-3 of the Engineering Report.

Response

Comment noted. Fact sheet changed.